

US EPA ARCHIVE DOCUMENT

LON C HILL REDEVELOPMENT PROJECT
LON C. HILL, LP

Performance Standard

		Siemens (2x1 w/o DB)
Net Power Output ⁽¹⁾	MW	688
Max. Heat Input ⁽¹⁾	MMBtu/hr (HHV)	4,593
Output Based Heat Rate ⁽²⁾	Btu/kWh (HHV)	6,880
Adjusted Output Based Heat Rate ⁽³⁾	Btu/kWh (HHV)	7,730
Output Based Standard ⁽⁴⁾	lb _{CO2} /MWh (HHV)	830

Notes:

- (1) The maximum net power output and heat input as provided by Siemens for a 2x1 configuration (SCC6-5000F GT) with no duct firing and for all evaluated ambient temperature scenarios.

Ambient Temperature (°F)	Net Power Output w/o DB (MW)	GT Max. Heat Input (HHV) (MMBtu/hr)
15	674	4,520
45	679	4,524
60	684	4,553
75	688	4,593
95	655	4,432

*Net Power Output provided by vendor for the entire system including 2 GT and 1 ST

- (2) Output Based Heat Rate (Btu/kWh) = Case 11 from Siemens Performance Data (HHV)= 6880 Btu/kWh (HHV)

- (3) Adjusted Output Based Heat Rate = Output Based Heat Rate * Compliance Margin Factor (rounded)
 Compliance margin factor (12.3%) accounts for the variance of the design heat rate and the achieved heat rate, lossess due to equipment degradation and variability on auxiliary plant equipment.

Adjusted Output Based Heat Rate = 6,880 Btu/kWh * (1 + 0.123) = 7,730 Btu/kWh

Design margin	3.3%	reflecting the possibility that the constructed facility will not be able to achieve the design heat rate.
Performance margin	6.0%	reflecting efficiency losses due to equipment degradation prior to maintenance overhauls.
Degradation margin	3.0%	reflecting the variability in operation of auxiliary plant equipment due to use over time.

- (4) Output Based Standard CO₂ (lb/MWh) = CO₂ Emission Rate (tpy) / Net Power Output (MW) * 2,000 lb/ton * 1yr/8,760 hr

EPN	FIN	CO ₂ Emission Rate (tpy)
STK-101	CC-101	1,255,634
STK-102	CC-102	1,255,634
Total CO ₂ Emissions (tpy)		2,511,268

Output Based CO₂ = (1,255,634 tpy + 1,255,634 tpy) / 688 MW * 2,000 lb/ton * 1yr/8,760hr = 830 lbCO₂/MWh

Represented Range of 830 to 920 lbCO₂/MWh represents range bounded by the rounded Output Based CO₂ (830 lbCO₂/MWh) and an Output Based CO₂ value that accounts for operational variations (920 lbCO₂/MWh)